Mackenzie (J. N.)

THE PHYSIOLOGICAL AND PATHOLOGICAL RELATIONS BETWEEN THE NOSE AND THE SEXUAL APPARATUS OF MAN.

By John Noland Mackenzie, M. D., *of Baltimore.*

Clinical Professor of Laryngology and Rhinology in the Johns Hopkins Medical School and Laryngologist to the Johns Hopkins Hospital.

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"Balnea, vina, Venus corrumpunt corpora nostra,
Set vitam faciunt, b(alnea), v(ina), V(enus)."†

Οἶνος καὶ τὰ λοετρὰ καὶ ἡ περὶ Κύπριν ἐρωὴ
ὀξυτέρην πέμπει τὴν ὁδὸν εἰς Ἀίδην.‡

Mr. President and Gentlemen.—The limited time at my disposal this morning precludes an elaborate discussion of the propositions which form the text for these remarks. I shall, therefore, content myself with a brief statement of the conclusions which I have reached after a careful study of the subject, and shall not weary you with the arid narrative of individual cases.

The injurious effects of undue excitation or disease of the generative apparatus upon the organs of sight and hearing are matters of ancient recognition. That immoderate indulgence in venery may lead to derangements of the former was familiar to Aristotle,§ and that the fathers of medicine recog-

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*Remarks made before the British Medical Association at its Montreal meeting, September, 1897.

† An old inscription found in the Campus Florae in Rome. See Buecheler's Antholog. Latin. Carmen. Epigraphic., Fasc. II, p. 705, No. 1499, Teubner edition, 1897. Also Corpus Inscript. Latin. VI, 15258, Gruter 615, 11, Orelli 4816, etc. It is attributed, however, by Scaliger to a modern poet.

‡ The supposed Greek original. See Antholog. Palatin. X, 112.

§ Aristot. Opera omnia graeco-latin. Parisiis, 1854. De animalium generatione, lib. ii, cap. 7.

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nized some mysterious connection between the ear and the reproductive functions is evident from the testimony of Hippocrates.* Over two centuries ago Rolfinc† wrote: "*Qui partibus genitalibus abutitur, et sexto praecepto vim infert, male audit,*" a proposition which has been fully established by the clinical experience of to-day.

The intimate relationship between the genital organs and those of the throat and neck seems to have attracted the special attention of the ancients. Thus Aristotle‡ clearly defines the changes in the voice at puberty, and the effect of castration on its qualities.§ Its harsh, irregular and discordant character during the maturation of the sexual functions was furthermore affirmed to be more conspicuous in those who attempted the early gratification of the sexual appetite. The observation that, during coitus, the voice becomes rougher and less acute, led the phonasci or voice-trainers to infibulate their pupils, or confine the penis with bands and fetters, to preclude indulgence in wantonness,‖ whilst the popular idea

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* Opera omnia. Ed. Kühn, Lipsiae, 1827, tom. i, p. 562.

† Ordo et methodus generatione dicatarum partium, per anatomen, cognoscendi fabricam. Jenae, 1664, part i, cap. vii, p. 32.

‡ Op. cit., De animal. historiâ, lib. vii, cap. i.

Choking sensations in the throat and other hysterical manifestations have from time immemorial been regarded as signs of pregnancy. Shakespeare, in King Lear (sc. ii, act iv) thus gives expression to this idea:

> "O, how this mother swells up towards my heart!
> *Hysterica passio!* down, thou climbing sorrow,
> Thy element's below."

§ Op. cit., De animal. generatione, lib. v, cap. 7.

‖ J. Riolani Anthropographiae, lib. ii, cap. 34, p. 303, Francofurti, 1626. Riolanus quotes from the *Musaeum* of Albertus Magnus the case of a girl, sent to fetch wine from a public house, who was seized and ravished on the road, and who found in attempting to sing on her return that her voice had changed from acute to grave.

See also Martial (lib. ix, Epig. 28):

> "Jam paedegogo liberatus et cujus
> Refibulavit turgidum faber penem."

Also lib. xiv, Epig. 215:

> "Dic mihi, simplicitur, comoedis et cithaedis
> Fibula quid praestet? Carius ut futuant."

See also Juvenal, sat. vi, 73.

The gladiators and athletes were also subjected to infibulation:

> "Dum ludit media, populo spectante, palaestra,
> Delapsa est misero fibula; verpus erat."
> Martial, lib. viii, Epig. lxxxii.

of the injurious effect of repeated coition upon the singing voice is reflected in the epigram of the Roman satirist:

"Cantasti male, dum fututa es, Aegle,
Jam cantas bene ; basianda non es."*

The supposed influence of sexual excitement upon the external throat is likewise apparent from the ancient nuptial ceremonial. Before the virgin retired on the wedding night it was customary to measure her neck with a tape and again on the following morning. If the neck showed an increase in size it was taken as a certain indication of defloration, whilst if the two measurements were equal she was supposed to have retained her virginity. This curious test, which has also been utilized to establish the fact of adultery, has been transmitted to us in the Epithalamium of Catullus:

"Non illam nutrix, oriente luce revisens,
Hesterno collum poterit circumdare filo."†

Whilst, therefore, the above historical facts point to the early recognition of the relationship between over-indulgence of the sexual powers and morbid conditions of the eye, ear and throat, the special part which it plays in the production of nasal disease seems to have been heretofore overlooked.

My attention was first attracted to the investigation of the physiological and pathological relations between the nose and the genital organs by the case of a patient in London, in 1879, who invariably suffered from coryza after sexual indulgence.

Stimulated by this observation I began the study of the subject, and five years later published the results of my investigations in the American Journal of the Medical Sciences for April, 1884, in an essay entitled "Irritation of the Sexual Apparatus as an Etiological Factor in the Production of Nasal Disease." In this thesis, which was the first attempt

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* Martial, Epig. lib. i, xcv, ad Aeglen fellatricem.

† Epithal. Pelei et Thetidos, lxiv. Catulli op. omn., Lond., 1882, p. 230. This phenomenon was variously attributed to the dilatation of the vessels of the neck by the semen, a portion of which, according to the Hippocratic doctrine, flowed down from the brain during intercourse, and to the general agitation of the vascular system, and especially the arterial and venous trunks of the throat, during the excitement of the sexual act.

to reduce this curious relationship to, as far as possible, a scientific basis, I advanced the series of propositions which you will find embodied in the text of these remarks.

Several years later there appeared in France a thesis by Arviset,* a critical review by Isch-Wall† and an excellent article by Joal,‡ which dealt in a most interesting way with the topic under consideration. In Germany, Peyer§ in Munich, Endriss‖ in Goeppingen, and, in the present year, Fliess¶ in Berlin, have enriched its literature with their contributions. Fliess's elaborate monograph, written in apparent ignorance of the work done by me in this special field before him, is a model of painstaking labor, and is valuable as an independent contribution to the study of this important subject.

Before submitting for discussion the propositions which form the text for these remarks, let me briefly call attention to certain matters of historical interest which have seemed in olden times to have foreshadowed the physiological relationship between the nose and the genital apparatus.

In the Ayurvéda, the sacred medical classic of the ancient Hindus, a work of fabulous antiquity, the causes of common catarrh are thus tersely defined:

> "Uxoris concubitus, capitis dolor, fumus, pulvis, frigus,
> Vehemens calor, retentio urinae soecumque statim
> Catarrhi causae dictae sunt."**

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* Contribution à l'étude du tissu érectile des fosses nasales. Thèse de Lyon, août, 1887.

† Progrès médical, Sept. 10 et 17, 1887. Du tissu érectile des fosses nasales.

‡ Revue mensuelle de laryngologie, d'otologie et de rhinologie, févr. et mars, 1888. De l'épistaxis génitale.

§ Ueber nervös. Schnupfen u. Speichelfluss u. den ätiologischen Zusammenhang derselben mit Erkrankungen des Sexualapparates. Münchener Med. Wochenschrift, Jahrgang 1889, No. 4.

‖ Ueber die bisherigen Beobachtungen von physiologischen u. pathologischen Beziehungen der Oberen Luftwege zu den Sexualorganen. Inaug. Diss. Würzburg, 1892.

¶ Die Beziehungen zwischen Nase u. weiblichen Geschlechtsorganen. Berlin, 1897.

** Susrutas Ayurvédas: id est Medicinae Systema, a venerabili D'hanvantare demonstratum a suo discipulo compositum. Translated from the Sanscrit into Latin by Franciscus Hessler, Erlangen, tom. iii, cap. xxiv, p. 44, 1850.

Although indulgence in venery heads the list, it is highly probable that its real influence was unrecognized, and that it is given as an etiological factor simply in accordance with the seemingly prevalent idea that pervades the Indian Shastras, that venery and confinement of the bowels lay at the root of most diseases.

The earlier physiognomists laid great stress upon the size and form of the nose as an indication of corresponding peculiarities in the penis.* The nose, for example, that was large and firm was looked upon as an index of a penis acceptable to women, and hence it was that the licentious Emperor Heliogabalus only admitted those who were *nasuti, i. e.* who possessed a certain comeliness of that feature, to the companionship of his lustful practices.†

Johanna, Queen of Naples, a woman of insatiable lust, seems also to have selected, as her male companions, men with large noses, with a similar end in view.‡ Sterne, in Tristram Shandy, depicts with consummate humor the supposed sexuality of the nose in "Slawkenbergius's Tale," in which the city of Strasburg was captured by a handsome nose. Every one remembers the closing lines of that intensely amusing production: "Alas! alas! cries Slawkenbergius, making an exclamation—it is not the first, and I fear will not be the last fortress that has been either won—or lost by noses."

While the efforts of those who have selected men who were *nasuti* for sexual purposes were doubtless often crowned with success, history, alas! records some cases of bitter disappointment. Thus Henry Salmuth§ relates with great solemnity a case in point.

Christian Francis Paullini in his curious work‖ devotes a

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*See especially Ludwig Septalius: De Naevis tractatus, sect. 26, p. 18, in Bonet's Labarynthi medic. extricati, etc. Genevae, 1687.

†Vide Aelius Lampridius in vitâ Antonii Heliogabilis, in Hist. August. etc. Beponti.

‡Guidonis Pancirolli rerum memorabilium sive deperditarum pars prior, etc. Francofurti, 1646, lib. 2, tit. 10, p. m. 176.

§Ibid. p. 177.

‖Observat. medico-physiog. Cent. i, obs. xcvii, p. m. 141; Lipsiae, 1706.

chapter, under the caption *Nasuti non semper bene vasati*,* to the subject. After alluding to the prevalent impression that a large nose indicated a corresponding increase in volume of the virile organ, he goes on gravely to state that he has known several "noble and pious" men in whom the rule did not hold good, and relates the following mournful tale: "Nobilissima ac venustissima Virgo, sed valde petulca, duos simul habebat procos, alterum bonae vitae, fortunataeque hominum, sed macilentum; alterum quadratum, et *insigni naso* conspicuum, hirconem, ac fruges consumere natum. Illa, temto isto, hunc sibi elegit ob peculium, quod sperabat, magnum et conditionem strenuam. Sed egregie decepta est. Hinc domi jurgia, foris rixae et summa viri aversio, ob sterilitatem quae thorum perpetuo comitatur."

It was possibly the supposed influence of an elegant and handsome nose as an incentive to illicit amours that led to the well-known custom of amputation of that organ in adulterers, "*truncas inhonesto vulnere nares*,"† whilst in women detected in the act‡ the disfigurement thereby produced was intended as a perpetual reminder of their shame.

In astrology Venus was supposed to govern the nose. According to all the astrologers, the gentry who

> "... feel the pulses of the stars,
> To find out agues, coughs, catarrhs,"

Venus presides over generation and all the parts pertaining thereto. De la Chambre in his work *L'Art de Connoistre les Hommes*,§ in alluding to this supposed influence, says that nothing is more convincing, at least to those who admit the influence of planets on the affairs of men, than that there is an intimate relationship (astrologically) between the genital organs and the nose. As the result of this sympathy the nose must receive the same influence which the planet Venus

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* Vasatus, post-classical.

† Virgil, Aeneid, vi, 497.

‡ Vide Diodorus Siculus in Bibliothecae Historicae, Paris edition, 1854, tom. i, lib. i, cap. lxxvii (5), p. 64. On the customs and laws of the Egyptians.

§ L'Art de Connoistre les Hommes. Amsterdam, chez Jacques le Jeune, 1660. De la metoposcopie, p. 259.

communicates to the genital organs and must submit to the same empire to which they are subjected. The astrological signs of the nose are reproduced in the genital organs, which, like the nose, occupy a prominent part in the center of the body.

The charlatans of those days pretended to establish the fact of virginity or defloration by astrological signs. William Lilly, the celebrated English astrologer and impostor of the seventeenth century, claimed never to have made a mistake.* It was doubtless this method of imposture that inspired the line of Butler in Hudibras, "detect lost maidenheads by sneezing,"† in the famous poem in which he smiled the pretensions of this fraternity of quacks away.

The idea of some occult relationship between the nose and the virile member seems, in days gone by, to have crept even into the darkness of teratology. Thus we find Palfyn‡ describing cases in which in place of the nose were found masses resembling the male organs of generation.

To render the relationship to which I wish to call attention more intelligible it is necessary to recall the anatomical fact that in man, covering the whole of the inferior, the under surface of the middle, the posterior ends of the middle and superior, and, what is not sufficiently insisted upon by many writers, a portion of the septum, is a structure which is essentially the anatomical analogue of the erectile tissue of the penis. Like it, this body is composed of irregular spaces, or so-called erectile cells, separated by trabeculæ of connective tissue containing elastic and muscular fibers, the latter element being not as prominent and well-marked as in the cavernous bodies of the generative organs. Under a multitude of various impressions erection of this tissue takes place,

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* Life and Times of William Lilly, written by himself. London, 1629.

† Part ii, canto iii, 285. Bartholini (Anatomica Reformata, de naso; also Lond. ed., bk. iii, chap. x, p. 150) tells us that Michael Scotus pretended to be able to diagnosticate virginity by touching the cartilage of the nose.

‡ Fortunus Licetus (Jean Palfyn), Description anatomique des parties de la femme, etc., avec un traité des monstres. Leiden, 1708, lib. ii, chap. 30, p. 142 and 144.

the dilatation of its cells being, in all probability, under the direct dominion of vaso-motor nerves derived through the spheno-palatine ganglion. It is the temporary dilatation of these bodies that constitutes the anatomical explanation of the stoppage of the nostrils in coryza and allied conditions, and their permanent enlargement is the distinctive feature of chronic inflammatory states of the nasal passages. This erectile area is, moreover, especially concerned in the evolution of the many curious "reflex" phenomena which are observed in connection with nasal affections. Indeed, the changes which it undergoes seem to lie at the foundation of nasal pathology, and furnish the key not only to the correct interpretation of nasal disease, but also to many obscure affections in other and remote organs of the body. For practical purposes we may consider this erectile, or contractile, area, consisting, as it does, of myriad blood-vessels and blood spaces in wonderfully exquisite correlationship, bounded on the one side by mucous membrane, and on the other by periosteum, as an important organ, certainly of respiration and probably of other physiological functions, using the term organ in its highest physiological sense. Call these bodies by whatever name we may, erectile bodies, corpora cavernosa, nasal lungs, we have a definite, peculiar anatomical arrangement of tissues endowed with specific physiological function and serving a manifest and manifold destiny in the organism.

Physiological.

That an intimate physiological relationship exists between the sexual apparatus and the nose, and especially the intra-nasal erectile tissue, is sufficiently evident from the following facts:

I.—(*a*) In a certain proportion of women whose nasal organs are healthy, engorgement of the nasal cavernous tissue occurs with unvarying regularity during the menstrual epoch, the swelling of the membrane subsiding with the cessation of the catamenial flow.

(*b*) In some cases of irregular menstruation, in which the individual occasionally omits a menstrual period without external flow, at such times the nasal erectile bodies become swollen and turgid as in the periods when all the external evidences of menstruation are present.

(*c*) The monthly turgescence of the nasal corpora cavernosa may be bilateral, or confined to one side, the swelling appearing at first in one side and then in the other, the alternation varying with the epoch.

(*d*) The periodical erection may be inconsiderable and give rise to little or no inconvenience, or, on the other hand, the swollen bodies may occlude the nostril and awaken phenomena of a so-called reflex nature, such as coughing, sneezing, etc.

(*e*) In some cases there seems to be a direct relationship between this periodical engorgement of the nasal erectile bodies and the phenomena referable to the head that so often accompany the consummation of the menstrual act.

(*f*) As a natural consequence of the phenomena above described, the nasal mucous membrane becomes, at such periods, more susceptible to reflex-producing impressions, and is therefore more easily influenced by mechanical, electrical, thermic and chemical irritation.

(*g*) The conditions (engorgement and increased irritability of the nasal mucous membrane) indicated above, together with the phenomena that accompany them, are also found during pregnancy at periods corresponding to those of the menstrual flow. There is also reason to believe that similar phenomena occur during lactation and the menopause.

During the period of my original investigations I was unable, from poverty of material, to come to any definite conclusions in regard to the behavior of the nasal apparatus during pregnancy. I was familiar with the fact that in some women the presence of pregnancy was proclaimed by a cold in the head. Isolated cases, too, had led me to the belief that the changes such as I described in my first article occurred in some women, at least, during that period at intervals corresponding to those of the menstrual flow, but at the time of publication of my essay I was not as sure of the fact as I am now. Since my work first appeared I have been so busied with other things that I have given little or no time to the subject. Several cases have, however, offered themselves to me which have confirmed me in the belief that sometimes, at least, the phenomena described by me as occurring during menstruation also occur in pregnancy at periods corresponding to those of the monthly flux. Not to mention others, I

have, for example, at present under my care a young pregnant married woman, without any disease of the nasal passages, who with great regularity during the time at which her menses are due (from the 13th to the 17th of every month) suffers from acute and complete obstruction of both nostrils, intense sensitiveness of the nasal mucosa and violent paroxysms of sneezing. These phenomena commence on the 13th, reach their acme by the 15th, and gradually subside, to disappear on the 17th of the month. During the intervals between the periods there is no abnormal condition of the nose present. Indeed, it was for this peculiar, disagreeable feature of her pregnancy that she consulted me, with a very accurate voluntary description of her symptoms. This condition of affairs has continued during three pregnancies. If other proof were wanting of the fact that menstrual phenomena referable to the nose occur during pregnancy, the question has been definitely settled by Fliess, who has shown that they not only occur during that period, but also during lactation. This author also reports several cases in which abortion was accidentally produced by galvano-caustic operations on the nose. In this connection I would call attention to the fact that Pliny* observes that the smell of a lamp which has been extinguished will often cause abortion, and that the latter ensues should the female happen to sneeze just after the sexual congress.

II.—The presence of vicarious nasal menstruation.

(*a*) It is a familiar fact that women are occasionally found in whom the menstrual function is heralded or established by a discharge of blood from the nostrils. This hemorrhage, which may be accompanied by other phenomena referable to the nose, such as sneezing, etc., may be replaced afterwards by the uterine flow, but sometimes continues throughout the menstrual life of the individual. In the latter case, some malformation or derangement of the sexual apparatus seems to be, usually, though not always, responsible for the nasal flow.

(*b*) Epistaxis also occurs, now and then, from the suppression of the normal flux. This was considered as a favorable

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* Nat. His. lib. vii, cap. 7.

sign by Hippocrates,* and by Celsus,† who followed closely in his footsteps.

(*c*) Hemorrhage from the nose may occur as the vicarious representative of menstruation during pregnancy; towards the close of menstrual life as the premature or normal herald of the menopause; or it may be observed as a recurring phenomenon after the establishment of the change of life or after the removal of the uterus or its appendages.

(*d*) These vicarious hemorrhages are, moreover, not confined to women, but make their appearance not infrequently in boys at or near the age of puberty, upon the full development of their sexual powers.

III.—*The well-known sympathy between the erectile portions of the generative tract and other erectile structures of the body.*

There is no reason why the sexual excitement that leads to congestion and erection of these organs, as for example in the case of the nipple, may not, under similar circumstances, cause engorgement of the nasal erectile spaces.

IV.—The occasional dependence of phenomena referable to the nose during sexual excitement (such as, for example, nose bleed, stoppage of the nostrils, sneezing and other reflex acts), either from the operation of a physiological process, the *erethism* produced by amorous contact with the opposite sex or during the consummation of the copulative act.

The nasal symptoms most commonly found associated with sexual excitement are sternutation, occlusion of the nasal passages (from erection of the corpora cavernosa), and epistaxis.

Sneezing is sufficiently common, particularly during coitus. Quite a number of such cases have come under my personal observation in persons in robust health and whose nasal organs were apparently free from disease. The reflex may occur before (from erotic thoughts), during, or after the consummation of the act. Many like cases have been since reported to me. Thus one physician of large practice, who became interested in the subject, found twelve cases among his clientele. It may be interesting to know that this form of sexual consensus, or sympathy, has been recognized for centuries.

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*Op. omn. Ed. Kühn. Lipsiae, 1827, tom. ii, p. 174. De morbis lib. i, and Aph. sect. 5, art. 33.

† De medicina. Rotterodami, 1750, lib. ii, cap. 8.

Thus in the sixteenth century, Amatus Lusitanus* reports a case of sneezing from the sight of a pretty girl; Bonet† and Thomas Bartholini,‡ and later, Stalpart Vanderwiel,§ relate cases of sneezing during coitus. In the last century Schurig,‖ following Bartholini, and at the commencement of the present, Gruner,¶ give sneezing as one of the signs of pregnancy. Gruner** states that the nose becomes warm and red in the

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* Curationum medicinalium cent. iv, cur. 4, Venet. 1557. See also Rahn. Exercit. phys. de causis physicis mirae illius tum in homine, tum inter homines, tum denique inter cetera naturae corpora sympathia, xvii, Turici 1788.

† Sepulchretum. L. I, s. xx.

‡ Historiarum anatomic. et medic. rariorum, cent. v et vi, ed. Hafniae, 1761, v, p. 184.

§ Gynaecologia historico-medica, etc. Dresden and Leipsic, 1730, p. 429.

‖ Observations rares de médecine etc. (quoted by Deschamps, Traité des maladies des fosses nasales et leur sinus. Paris, 1804, p. 88.)

¶ Physiologische u. pathologische Zeichenlehre, etc. Jena, 1801, p. 122.

** Ibid., p. 327. Several of the older writers refer to a case of "pituitous and serous catarrh" from coitus, reported by Georg Wolfgang Wedel (see Schurig, Spermatologia historico-medica etc., Francofurti ad Moenum., 1720, p. 280), but I have been unable to obtain the original account of the case. John Jacob Wepfer, Observationes medico-practicae de affectibus capitis internis et externis, Schaphusii, 1728, obs. lvii (see my essay, The Pathological Nasal Reflex, an Historical Study. Transactions of the American Laryngological Association, 1887; also N. Y. Medical Journal, August 20th, 1887), mentions a case of hemicrania, tinnitus aurium and vertigo associated with uterine trouble, sneezing and a nasal discharge, but few particulars are given.

It is interesting in this connection to recall the admonition of Celsus to abstain from warmth and women at the commencement of an ordinary catarrh. (Op. cit., lib. iv, cap. 2, § 4, "ubi aliquid ejusmodi sentimus, protinus abstinere a sole, a balneo, a venere debemus.") Hippocrates, on the other hand, relates the following case: "Timochari hieme distillatione in nares praecipue vexato, post veneris usum cuncta ressicata sunt, lassitudo, calor et capitis gravitas successit, sudor ex capite multus manabat." Op. cit., De morbis vulgaribus, lib. v (tom. iii, p. 574). The expression "bride's cold" would seem to indicate on the part of the laity the suspicion of a causal connection between repeated sexual excitement and coryza.

hysterical, in women at the menstrual period and in the victims of onanism.

Isolated cases of sneezing at the menstrual period are found scattered here and there in older medical literature. Thus Garmanus* and Lanzonus† report cases of this kind, Delius‡ a case of sneezing following the suppression of the menses, while Petzold§ relates one in which sneezing occurred every day during the whole of pregnancy. Paullini‖ records a case in which the menses were brought on by sternutatories, and quotes Fabricius Hildanus as having noted copious menstruation follow violent and immoderate sneezing.

Sudden and complete occlusion of both nostrils sometimes occurs with regularity during coitus. This phenomenon, which may be accompanied by so-called "reflex" phenomena, such as, for example, asthmatic attacks, is doubtless due to sudden dilatation of the erectile bodies from paralysis of their vaso-motor nerves; for as Anjel¶ has shown, during coitus the nervous shock is distributed to the whole vaso-motor system of nerves and is not confined to the erection center.

Cases have also been reported in which the act of coitus was accompanied by hemorrhage from the nose (Isch-Wall, Joal).

V.—The reciprocal relationship between the genital organs and the nasal apparatus is furthermore illustrated by the occasional dependence of genito-urinary irritation upon affections of the nasal passages. Retarded sexual development, too, may possibly depend upon the co-existence of nasal defect.** Unfortunately there are no authentic cases in literature in support of this latter hypothesis, but in this connection I would like to call attention to the remarkable case reported by Heschel (Wiener Zeitschrift für pract. Heilkunde, März 22, 1861), in which imperfectly developed

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* Ephemerid. nat. cur. Dec. ii, An. viii, obs. 152.

† Ibid., Dec. iii, An. ii, obs. 32.

‡ Act. nat. cur., vol. viii, obs. 108.

§ Ephem. nat. cur. Dec. iii, An. v, vi, obs. 183. See also Rahn, op. cit., p. 34.

‖ Op. cit., cent. iv, cap. xlviii.

¶ Archiv für Psych., Bd. viii, Heft 2.

** See Elsberg, Archives of Laryngology, Oct., 1883.

genital organs were associated with absence of both olfactory lobes. The man was well developed, with the exception of the testes, which were the size of beans and contained no seminal canals, and the larynx, which was of feminine dimensions. All trace of olfactory nerves was absent, as were also the trigona olfactoria and the furrow on the under surface of the anterior lobes. There was scant perforation of the cribriform plate which transmitted the nerveless processes of the dura mater. There was also an absence of nerves in the nasal mucosa.

VI.—It is, finally, quite possible that irritation and congestion of the nasal mucous membrane precede, or are the excitants of, the olfactory impression that forms the connecting link between the sense of smell and erethism of the reproductive organs exhibited in the lower animals and in those individuals whose amorous propensities are aroused by certain odors that emanate from the person of the opposite sex.

Through all the centuries the season of flowers—the springtime—has been celebrated in amatory song and story as the season of love and of sexual delight. This conceit, handed down to us from the poets of antiquity, finds modern expression in the glorious verse of Tennyson:

"In the Spring a fuller crimson comes upon the robin's breast;
In the Spring the wanton lapwing gets himself another crest;
In the Spring a livelier iris changes on the burnish'd dove;
In the Spring a young man's fancy lightly turns to thoughts of love."

Woman, in all the ages, from the perfumed courtesan of ancient Babylon to her reflected image in the harem of the Sultan to-day, has appealed to the olfactory sense to bring man under her sexual dominion and to fire his passionate desire.

In the Song of Solomon, in the *Artes amoris* of the older writers, in the fetich worship of odor, in the picture of Richelieu surrounded by an atmosphere of dense perfume in order to stimulate his amorous feeling, is reflected the idea of the possible power of olfactory perception in awakening sexual thoughts. If you doubt that modern man has not forsaken this idea, read Zola,* Lombroso, Tolstoi, Nordau.

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* See especially a work by Leopold Bernard, Les odeurs dans les romans de Zola. Montpellier, 1889.

Rousseau has aptly termed olfaction the sense of the imagination, and if we reflect how intimately related it is to the impressions we form of external objects, how it affects our emotions and influences our judgment, the clever definition of the French philosopher becomes all the more striking and felicitous.*

While it is undoubtedly true that olfactory impression in man, under natural conditions, plays a subordinate part in the excitation of sexual feeling, while it may be also true that such intensification or perversion of the odor sense may indicate an abnormal condition and a reversion to the purely animal type, still the fact is incontestable that many persons are attracted sexually to each other through the sense of smell. Both history and fiction are full of such examples.

In connection with this part of the subject it is interesting to note the extraordinary degree of nervous sympathy that may be developed through the sense of smell. Millingen,† for example, relates the case of a pensioner in the Hospital for the Blind in Paris, called *Les quinze Vingt*, who by the touch

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*Of great interest is the influence which civilization exerts upon the development and impressibility of the olfactory sense. Without enumerating, much less elaborating, the myriad conditions that conspire to produce such a result, we may safely lay down the general proposition that the physical and moral forces of civilization—the social and intellectual environment of the subject—exert a marked effect upon the olfactory faculty by inviting or encouraging disturbance of the sentient and perceptive apparatus; that the higher we ascend in the social scale, the more readily our judgments are unnaturally influenced or perverted by impressions derived through the sense of smell, and that the more we recede from the inferior orders, the less perfect and acute this faculty becomes, the more susceptible to irritation and the more predisposed to disease. In view, therefore, of the importance of olfaction as an avenue through which our mental impressibility is influenced—our imagination perverted—and in view of the relations of civilization to the sense of smell, we can readily understand why it is that this faculty is found more frequently deranged among the superior orders than in those lower down in the social scale and in the savage state.

†Millingen. The Passions, or Mind and Matter, etc. London, 1848, p. 102.

of a woman's hands and nails and their *odor* could infallibly assert if she were a virgin. A number of tricks were played on him and wedding rings were put on the fingers of young girls, but he never was at fault.

As in the lower animals it is possible or even probable that the alternate inflation and collapse of the erectile bodies is, to some extent at least, the means by which the grateful or ungrateful odorous particles are excluded from, or admitted to contact with, the apparatus of special sense, so in men in whom this sense is sexually excited or perverted, either normally, or from defect in the subjects themselves, the reception or rejection of the sensuous odors may be accomplished by a similar mechanism.

These facts point conclusively to an intimate physiological association between the nasal and reproductive apparatus, which may be partially explicable on the theory of reflex or correlated action, partially by the bond of sympathy which exists between the various erectile structures of the body. That a relationship exists by virtue of which irritation of the one reacts upon the circulation and possibly nutrition of the other, is accordingly rendered highly probable by the evidence of clinical observation.

If this excitation be carried beyond its physiological limits there comes a time sooner or later when that which is a normal process becomes translated into a pathological state, according to a well-known law of the economy. Hence it is *a priori* conceivable and eminently probable, not only that stimulation of the generative organs, when carried to excess, may become an etiological factor in the production of congestion and transient inflammation of the nasal passages, and especially of their cavernous tissue, but that repeated and prolonged abuse of the function of these organs may, by constant irritative influence on the turbinated tissue, become the starting point of chronic changes in that structure.

Pathological.

The following data, derived from personal clinical observation, may possibly throw some light upon the subject.

I.—In a fair proportion of women suffering from nasal affections, the disease is greatly aggravated during the men-

strual epoch or when under the influence of sexual excitement.

II.—Cases are also met with in which congestion or inflammatory conditions of the nasal passages make their appearance only at the menstrual period, or, at least, are only sufficiently annoying at that time to call for medical attention.

III.—Occasionally the discharge from a nasal catarrh will become offensive at the menstrual epoch, losing its disagreeable odor during the decline of the ovarian disturbance. In many cases of ozoena, the fetor is much more pronounced at times corresponding to those of the menstrual flow.

IV.—Excessive indulgence in venery sometimes seems to have a tendency to initiate inflammation of the nasal mucous membrane, or to aggravate existing disease of that structure. There are those, for example, who suffer from coryza after a night's indulgence in venereal excesses, and the common catarrhal affections of the nose are undoubtedly exaggerated by repeated and unnatural coition.

V.—The same is true in regard to the habit of masturbation. The victims of this vice in its later stages are constantly subject to nose-bleed, watery or mucous discharge from the nostrils, and perversion of the olfactory sense.

VI.—The co-existence of uterine or ovarian disease exerts sometimes an important influence on the clinical history of nasal disease. This fact has been shown in practice in cases in which the nasal affection has resisted stubbornly all treatment and in which it has only been relieved upon the recognition and appropriate treatment of the disease of the generative apparatus.

The recent researches of Fliess seem to indicate that the converse of this proposition is true.

The most commonly found conditions of the nasal apparatus following perverted sexual excitement, either from excessive venery or onanism, are: (1) coryza (generally of vaso-motor type), with or without reflex manifestations, such as asthma, paroxysmal sneezing, etc., (2) epistaxis, and (3) various forms of perversion of the sense of smell. In addition to these, Peyer has observed abnormal dryness of the nasal and pharyngeal mucous membrane, indicated by a feeling of dryness and burning in these regions and by complete cessation of secretion.

The coryza that follows intemperate venery resembles in character that seen in the disease falsely called "hay fever," and, like it, is generally associated with more or less pronounced neurasthenia, or shall we say, localized hysteria. In other cases the nervous system is not apparently involved. The predominant temperament, however, in individuals thus affected is the neurotic. While they may not necessarily in some instances belong to the so-called "nervous" or "hysterical" individual, while they may give no outward and visible sign of a deranged nervous system, there will generally be found, on careful examination, a delicacy or sensitiveness of the nervous apparatus either in whole or in part.

It is conceivable that this sexual coryza may be associated with almost any of the so-called nasal reflex neuroses. In one of my cases asthma was the central symptom. A young married woman, twenty-three years old, in otherwise apparently perfect health, consulted me for the relief of attacks of asthmatic breathing associated with stoppage of the nostrils. I could find nothing wrong at the time of consultation with the respiratory apparatus, and her other organs were in perfect condition. Reluctantly she confessed that every night for five years she and her husband had indulged in intemperate venery. Moderation in their sexual relations caused rapid disappearance of the symptoms, and in the nine years that have elapsed since she consulted me there has been no return of the disorder.

Interesting cases of asthma of nasal origin associated with, and due to sexual excitement have also been reported by Joal and Peyer. In this connection I would recall a case of periodic vaso-motor coryza reported by me at length elsewhere,* in which the attacks invariably appeared and were most severe at the menstrual period, appearing sometimes at its commencement, sometimes at its close. In the attacks coming on in the interval between the monthly periods pain was always felt in the left ovary. Residence at the seashore invariably gave relief, except during menstruation, when the attacks were as bad as when at home. The outbreak of the disease at

*A contribution to the study of coryza vasomotoria periodica, or so-called "hay fever." N. Y. Med. Rec., July 19, 1884.

the menstrual epoch in this case is readily explained by the physiological erection of the corpora carvernosa which occurs at that period. In this particular case the chief, and under certain circumstances the sole excitant of the paroxysm was the utero-ovarian excitement of the menstrual epoch.

Nose-bleed is not infrequently the result of onanism. Years ago Du Saulsay* called attention to the fact that enormous quantities of blood can be lost from the nose from the practice of this vice, and the accuracy of his observation is borne out by the experience of subsequent observers. Among others, Joal† has collected several such cases and reports three of his own. One of his patients informed him that he masturbated to excess to provoke nose-bleed, which relieved him from violent headaches from which he suffered.

Whether the hemorrhages in these cases—which by the way are not confined to the male sex‡—come from simple acute distension of the intra-nasal blood-vessels, or whether definite chronic structural changes have taken place in the mucous membrane and in the vessel walls, are points which are as yet undetermined. The probability is that some intra-nasal lesion is responsible for them, for, as I have pointed out elsewhere,§ the discharge from the nostrils and the perverted olfactory sense found in the later stages of onanism are often simply the outward expression of chronic nasal inflammation.

The nature of the perversion of the olfactory sense in onanists will vary with the character of the nervous condition produced by the vice—hyperosmia, hyposmia, parosmia and allotriosmia have all been observed in cases of immoderate sexual excitement.

The investigations of Fliess would seem to indicate that painful, profuse and irregular menstruation may in some instances depend upon an intra-nasal cause. He cites a number of cases to show that the pain of certain forms of dys-

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*Comment. de rebus in med. etc., vol. xviii, p. 213. Michell, in Schlegel's "Sylloge selectiorum opusc. de mirabile sympathiae quae partes inter diversas corporis humani intercedit." Lipsiae, 1787.

†l. c.

‡See case of Lemarchand de Trigon (girl of 16), quoted by Joal.

§l. c.

menorrhœa may be temporarily dissipated by the application of cocaine to the nasal mucous membrane, or permanently controlled by cauterization. According to him, only the inferior turbinated body and the tuberculum septi possess a special relation to the dysmenorrhoeic pains. These two localities he accordingly designates as κατ' ἐξοχήν, genital zones (Genitalstellen). If the tuberculum septi be cocainized, the sacral, if the inferior turbinated bodies be cocainized, the hypogastric, pains disappear. Cocainization of the right nostril causes disappearance of the pain on the left side of the body and *vice versa.*

In answer to the objection that these phenomena may be due to the general anæsthetic action of the drug, he points out the fact that cocaine absorbed into the blood does not produce a general analgesic effect, as is produced in the case, for example, of morphia. On the contrary, in small doses it acts as a stimulant. The fact that the pain ceases *only* when the genital zones are cocainized and that it may be permanently dissipated by cauterization of this area, does away, he thinks, with the assumption that the subsidence of the pains is a part of the euphoria produced by the drug. The fact alluded to above, that in cocainization of certain parts of the genital zones only individual pains disappear from the symptom complex, militates against the supposition of a simple, general narcotic effect.

I cannot vouch for or deny the accuracy of the above statements, as Fliess's monograph has just come into my possession and I have had neither time nor opportunity to put them to the test. Curiously enough, the genital zones of Fliess correspond exactly with the most sensitive portions of the sensitive reflex area mapped out by me in 1883.*

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*On Nasal Cough and the Existence of a Sensitive Reflex Area in the Nose. American Journal of the Medical Sciences, July, 1883. The results of these experiments were first brought before the Baltimore Medical Association in the early part of 1883, and subsequently before the Medico-Chirurgical Faculty of Maryland (April, 1883, *vide* Transactions), and the American Laryngological Association (May, 1883, *vide* Transactions). The conclusions reached from these investigations were as follows:

"(1) That in the nose there exists a definite, well-defined sensi-

tive area, whose stimulation, either through a local pathological process, or through the action of an irritant introduced from without, is capable of producing an excitation which finds its expression in a reflex act or in a series of reflected phenomena.

(2) That this sensitive area corresponds in all probability with that portion of the nasal mucous membrane which covers the turbinated corpora cavernosa.

(3) That reflex cough is produced only by stimulation of this area, and is only exceptionally evoked when the irritant is applied to other portions of the nasal mucous membrane.

(4) That all the parts of this area are not equally capable of generating the reflex act, the most sensitive spot being probably represented by that portion of the membrane which clothes the posterior extremity of the inferior turbinated body and that of the septum immediately opposite.

(5) That the tendency to reflex action varies in different individuals, and is probably dependent upon the varying degree of excitability of the erectile tissue. In some the slightest touch is sufficient to excite it; in others, chronic hyperæmia or hypertrophy of the cavernous bodies seems to evoke it by constant irritation of the reflex centers, as occurs in similar conditions of other erectile organs, as for example the clitoris.

(6) That this exaggerated or disordered functional activity of the area may possibly throw some light on the physiological destiny of the erectile bodies. Among other properties which they possess, may they not act as sentinels to guard the lower air passages and pharynx against the entrance of foreign bodies, noxious exhalations and other injurious agents to which they might otherwise be exposed?

Apart from their physiological interest, the practical importance of the above facts from a diagnostic and therapeutic point of view is sufficiently obvious. Therein lies the explanation of many obscure cases of cough which heretofore have received no satisfactory solution, and their recognition is the key to their successful treatment."

In calling attention to this area as containing the spots most sensitive to reflex-producing impressions, I did not, nor do I now (as has been wrongly inferred), desire to maintain that pathological reflexes may not originate from other portions of the nasal mucous membrane. Indeed, wherever there is a terminal nervous filament it *may* be possible to provoke sneezing, lachrymation and other reflex movements. My contention is simply this, that the area indicated in my original paper represents by far the most sensitive portion of the nasal cavities, and that pathological reflex phenomena are in the large majority of cases related to diseased conditions of some portion of this sensitive area. That all pathological nasal

I have on innumerable occasions* shown that phenomena widely different in character and anatomical sphere of operation may be produced at will by artificial stimulation of this area, and that they may be dissipated by local applications to, or removal of, the membrane covering the diseased surface. It is therefore not difficult to conceive that the phenomena referable to the uterus and ovaries during menstruation may be influenced in a similar manner. The specific relations of the two zones and the crossed action of the reflex, if such it be, are much more difficult of explanation. If such a con-

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reflexes arise from irritation of this particular area is a proposition which I do not, and never have maintained. The determination of these sensitive areas is of special importance and interest in the solution of the pathology of the so-called nasal reflex neuroses. Whether a special sensitiveness in certain portions of the nasal mucous membrane exists or not, the agitation of the question has led to more rational methods of procedure in the treatment of a large class of nasal affections, and to more conservative methods in intra-nasal surgery. Before the location of the sensitive area or areas, the nasal tissues were destroyed with an almost ruthless recklessness that bade fair to bring intra nasal surgery into the worst repute. (For an elaborate discussion of this whole subject see article by the author in Wood's Reference Handbook of the Medical Sciences, edited by Buck, Wm. Wood & Co., N. Y., 1887, vol. v, pp. 222–242.)

*My views upon this subject may be found in the following publications: A contribution to the study of coryza vaso-motoria periodica, or so-called "hay fever," N. Y. Med. Record, July 19, 1884. Coryza vaso-motoria periodica in the negro, with remarks on the etiology of the disease, N. Y. Med. Record, Oct. 18, 1884. Rhinitis sympathetica, essay read before Clin. Soc. of Md.; see brief abstract in Md. Med. Journal, April 11th, 1885, and in Internationales Centralblatt f. Laryngologie, etc., Sept., 1885. Observations on the origin and cure of coryza vaso-motoria periodica, Trans. Medico-Chir. Faculty of Maryland, 1885. Review of Morell Mackenzie's essay on hay fever, etc., The American Journal of the Med. Sciences, Oct., 1885, pp. 511–528. See also discussion of the subject before the American Laryngological Association (May 14th, 1884, vide Transactions, p. 113 et seq.). See also cases of reflex cough due to nasal polypi, Trans. of the Medico-Chirurgical Faculty of Md., 1884, and articles in Wood's Handbook already referred to.

dition of affairs exists, it is certainly a remarkable phenomenon.

These observations, therefore, encourage the belief, if they do not establish the fact, that the natural stimulation of the reproductive apparatus, as in coitus, menstruation, etc., when carried beyond its normal physiological limits, or pathological states of the sexual apparatus, as in certain diseased conditions, or as the result of their over-stimulation from venereal excess, masturbation, etc., are often the predisposing, and occasionally the exciting causes of nasal congestion and inflammation and perversion of the sense of olfaction. Whether this occur through reflex action, pure and simple, or as a sequel of an excitation in which several or all of the erectile structures of the body participate, the starting point of the nasal disease is, in all probability, the repeated stimulation and congestion of the turbinated erectile tissue of the nose. It is highly probable that this erectile area, or organ, so sensitive to reflex-producing impressions, is the correlative of certain vascular areas in the reproductive tract, and that the phenomena observed may therefore be explained by the doctrine of what we may call, for want of a better name, reflex, correlated action.

In these remarks I have attempted no thoroughgoing exposition of the subject, but simply laid before you the results of my personal labors. These no longer represent, I am glad to say, the result of solitary observation and isolated experience. I have not attempted, as Fliess has done, to touch upon the biological side of the question.

The study of the relations between the nose and the sexual apparatus opens up a new field of research, of pleasing landscape and almost boundless horizon, which bids to its exploration not only the physiologist and pathologist, but also the biologist. Above all it brings us face to face with a serious problem of life, an interesting enigma, whose significance it will be the task of the future to divine.